What Colleges Need to Know Now

An Update on College Drinking Research

The comprehensive reports released by the National Institute on Alcohol Abuse and Alcoholism's (NIAAA's) Task Force on College Drinking turned a national spotlight on the problem of harmful drinking among college students. The central report, *A Call to Action: Changing the Culture of Drinking at U.S. Colleges,* has proven influential in the college alcohol and other drug (AOD) prevention and treatment field. Statistics first introduced in the report are now routinely used to convey the magnitude of college drinking problems and their consequences. Policymakers, legal experts, and organizations that provide college programming assistance have modified their efforts to reflect the Task Force recommendations.

College drinking research remains a high priority for NIAAA, and ongoing projects continue to yield important new information. This bulletin summarizes these recent findings with updated statistics, analysis, and recommendations.

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College Drinking and Its Consequences: New Data

As national headlines attest, students continue to be seriously injured or die as a result of drinking. Are these attention-grabbing headlines designed to simply sell newspapers, or is the problem as extensive today as it was in 2002 when the NIAAA Task Force first reported its findings?

The news is mixed. Among college students and other 18- to 24-year-olds, binge drinking (see the textbox, page 2, for a definition) and, in particular, driving while intoxicated (DWI), have increased since 1998. The number of students who reported DWI increased from 2.3 million students to 2.8 million (1). The number of alcohol-related deaths also have increased. In 2001, there were an estimated 1,700 alcohol-related unintentional injury deaths among students 18–24, an increase of 6 percent among college students (that is, per college population) since 1998 (1). In addition, it is estimated that each year, more than 696,000 students between the ages of 18 and 24 are assaulted by another student who has been drinking, and more than 97,000 students between the ages of 18 and 24 are victims of alcohol-related sexual assault or date rape (1). Clearly, alcohol-related problems on campus still exist (1).

Another line of research is examining how becoming intoxicated at a young age is linked to later drinking problems during the college years. The results showed that college students who first became intoxicated prior to age 19 were significantly more likely to be alcohol dependent and

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frequent heavy drinkers. These younger drinkers also were more likely to report driving after drinking, riding with a driver who was drinking or drunk, and sustaining injuries after drinking alcohol that required medical attention (2).

There also is encouraging news. Research shows that several carefully conducted community initiatives aimed at reducing alcohol problems among college-age youth have been effective, leading to reductions in underage drinking, alcohol-related assaults, emergency department visits, and alcohol-related crashes (1).

A close collaboration between colleges and their surrounding communities is key. This includes environmental approaches (such as more vigorous enforcement of zero tolerance laws, other drinking and driving laws, and strategies to reduce the availability of alcohol) as well as approaches that target the individual drinker (such as wider implementation of alcohol screening, counseling, and treatment programs). ■

Defining Binge Drinking

One of the challenges facing researchers as they strive to assess drinking in college students has been the lack of a uniform definition of heavy episodic (or binge) drinking. In addition, the use of terms such as "on one occasion" or "in a sitting" to describe the time-frame for binge drinking has been criticized. Recognizing this, the NIAAA National Advisory Council approved the following definition:

> *A "binge" is a pattern of drinking alcohol that brings blood alcohol concentration (BAC) to 0.08 gram-percent or above. For a typical adult, this pattern corresponds to consuming 5 or more drinks (male), or 4 or more drinks (female), in about 2 hours.*

Interventions—What Is the New Research Telling Us?

In April 2002, NIAAA released a series of comprehensive reports from its groundbreaking Task Force on College Drinking. Findings emanating from the work of the Task Force were summarized in the report *A Call to Action: Changing the Culture of Drinking at U.S. Colleges,* which included solid, evidence-based recommendations to college and university administrators, community leaders, policymakers, parents, and students on addressing problems related to college drinking.

Central to the Task Force findings was the recognition that successful interventions occur at three distinct levels. In this concept, termed the 3-in-1 approach, interventions must operate simultaneously to reach individual students, the student body as a whole, and the greater college community. The Task Force members also grouped commonly used intervention strategies into four tiers, based on the degree of scientific evidence supporting them. Tier 1 represents the most effective strategies to prevent and reduce college drinking. Tier 2 represents strategies that have been successful with the general population and which could be applied to college environments. Tier 3 represents strategies that show logical and theoretical promise but require more comprehensive evaluation. Finally, Tier 4 focuses on the need to evaluate these approaches, in particular to identify those that are not proving useful.

Today NIAAA continues to monitor research on college drinking prevention, and current findings strongly support both the 3-in-1 approach and the grouping of strategies into four tiers. NIAAA recently commissioned two papers to examine the latest research findings in these areas (3,4). The findings of these two papers, as well as findings from other recent, noteworthy studies, suggest that certain topics warrant updated commentary in this bulletin.

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Individual Approaches

According to several new studies, strategies that focus on preventing drinking and alcohol problems in individual students continue to have significant research support. However, these findings also offer some new insights. Since the original Task Force report, a number of new studies have examined measures to reduce drinking among "mandated" students—or students who have been identified as having a problem with alcohol and who have been mandated to receive intervention and/or treatment for their problems. This is in contrast to the original report studies, which focused primarily on students who volunteered.

New Data on Mandated Students

Six new studies of mandated populations have been completed (5–10). Most of these studies used skills-based interventions and motivational interviewing—that is, teaching students about the risks of drinking (for example, the value of avoiding excessive drinking to achieve their academic and career goals) and showing students how to monitor their drinking, how to set limits and reduce their risks of drinking too much, and how to handle high-risk situations in which drinking is prevalent. The studies found that these interventions can be effective in reducing alcohol-related problems among mandated students (5–7,9).

As an example, in a recent study (10) students mandated to a substance use prevention program were provided either 1) an in-person brief motivational intervention or 2) an alcohol education session. Both groups of students showed a reduction in high-risk drinking. Students who received the brief motivational interview reported fewer alcohol-related problems than did those who received only the alcohol education session.

Participation Rates Remain Low

Unfortunately, recent research also suggests that those students who most need alcohol interventions may be the least likely to participate (11), yet they also are the most likely to experience or to create alcohol-related problems on campus (12). Delivering interventions in settings where students experiencing problems with alcohol are more likely to be seen, such as in health or counseling centers, may be most effective. Research also continues to support using trained student peers as part of the team that provides these interventions (7).

One strategy for increasing participation in these interventions is to make screening a routine event in university health centers and to use new technology, particularly the Internet, to reach larger percentages of students. This screening will provide greater opportunities for students to receive brief motivational or skills-based programs, which research continues to support. These approaches teach students how their drinking levels and patterns compare with the norm, using techniques such as personalized feedback, and give them the skills they need to change their drinking practices. Brief motivational or skills-based interventions may be especially useful with high-risk students, such as those who have been mandated to receive help with alcohol-related problems, freshmen, students involved with fraternities and sororities, and athletes.

The use of computer- or Web-delivered brief interventions is showing promise in a college setting (13). In their review of PC- and Web-based brief interventions for college students, Walters and Neighbors (14) suggested that personalized feedback may be the key component of this strategy's

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"The magnitude of problems posed by excessive drinking among college students should stimulate both improved measurement of these problems and efforts to reduce them."

—Ralph W. Hingson, Sc.D., member, NIAAA Task Force

Are College Students at Higher Risk Than Their Non-College Peers?

Does the college environment itself play a role in whether students drink? Or is it simply that people in this age-group are more likely to drink in ways that are risky? Dawson and colleagues* reported that college students are more likely to participate in heavy episodic (or binge) drinking than their non-college peers. But what about the adolescents' drinking behavior prior to college?

A recent national study by Timberlake et al.**, which followed students from early adolescence through their mid 20's, found that compared with their peers who never attended college, current college students were less likely to have been binge drinkers prior to their college years but more likely to binge drink once they entered college—probably as a result of the college environment. The researchers also observed that college students with a greater genetic risk consumed more alcohol per drinking episode. Living in an environment in which drinking behaviors are promoted may increase this binge drinking behavior. More research is needed to better understand how genetic and environmental influences dovetail to increase risk for alcohol problems in young people.

SOURCE: * Dawson, D.A.; Grant, B.F.; Stinson, F.S.; et al. Another look at heavy episodic drinking and alcohol use disorders among college and noncollege youth. *Journal of Studies on Alcohol* 65(4):477–488, 2004. PMID: 15378804 ** Timberlake, D.S.; Hopfer, S.H.R.; Friedman, B.C.; et al. College attendance and its effects on drinking behaviors in a longitudinal study of adolescents. *Alcoholism: Clinical and Experimental Research* 31(6):1020–1030, 2007. PMID: 17403064

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success, both in motivating students and helping them learn the skills they need to successfully change their behavior. Another study (15) tested the feasibility of providing online alcohol screening and brief intervention to more than one-half of an entire freshman class. The students were contacted through e-mail and invited to take the brief intervention. The researchers found that, in general, unhealthy alcohol use—ranging from risky drinking to alcohol abuse and dependence—decreased following the intervention.

Given these findings, it appears that increased alcohol screening and brief interventions are feasible and appropriate for identifying and addressing harmful drinking among college students.

Campus–Community Partnerships

Historically, research has demonstrated that broad-based, community-level interventions can reduce problems such as youth access to alcohol, underage drinking, heavy drinking among adults, and drinking while driving. Most of the research on these approaches, however, has centered on community efforts in general and have not looked specifically at the college campus environment. For that reason, in the original task force report Campus–Community Partnerships were grouped with strategies that showed evidence of success with general populations and which could be applied to college environments.

Since that time, several additional community intervention studies have shown reductions in alcohol problems. For example, one study (16) examined the effectiveness of a prevention approach targeted to specific neighborhoods. That intervention, called the Sacramento Neighborhood Alcohol Prevention Project (or SNAPP), was designed to reduce access to alcohol, drinking, and related problems in two low-income, predominantly ethnic minority neighborhoods. The study focused primarily on youth and young adults ages 15–29. SNAPP combined interventions that centered on

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raising awareness, mobilizing community action, and creating responsible beverage services. The result was a reduction in alcohol-related problems such as assaults and motor vehicle crashes.

Another study (17) examined the effect of a State-level program, Reducing Underage Drinking Through Coalitions (or RUD). This experimental trial provided funding for 10 States over an 8-year period to assist them in forming coalitions that would prevent youth access to alcohol. The program's success was measured by tracking media coverage, the number and type of new legislation enacted, the prevalence of drinking among youth, and the incidence of alcohol-related drinking and driving. The results showed sometimes-sizeable results in terms of certain measures, such as increasing media coverage and State policies enacted as well as decreasing youth drinking and alcohol-related driving and fatal car crashes.

A third study found that a combination of environmental strategies to reduce alcohol availability and an increase in the availability of treatment lowered alcohol-related traffic deaths by one-fifth over a 10-year period, relative to matched communities in the same States (18).

New Evidence for College-Specific Audiences

Since the original Task Force report was issued, several studies have evaluated the community partnership approach specifically for college communities, with encouraging results. One study examined how the campus and community environments can work together to prevent drinking and driving at two universities (19). This study was one of the first to test the usefulness of a multistrategy DUI (driving

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Treatment for Alcohol Problems: An Unmet Need

In a recent survey:*

- 19 percent of college students ages 18–24 met the criteria** for alcohol abuse or dependence.
- 5 percent of these students sought treatment for alcohol problems in the year preceding the survey.
- 3 percent of these students thought they should seek help but did not.

These data underscore an important fact—that while good individual treatment is available for alcoholism, these programs often are not accessible to a broad audience.

Moreover, the students who drink most heavily are the least likely to seek treatment; yet they experience or are responsible for the greatest number of alcohol-related problems on campus***.

SOURCE: * National Epidemiologic Survey on Alcohol and Related Conditions ** From the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM–IV), American Psychiatric Association. *** Presley, C.A., and Pimentel, E.R. The introduction of the heavy and frequent drinker: A proposed classification to increase accuracy of alcohol assessments in postsecondary educational settings. *Journal of Studies on Alcohol* 67:324–331, 2006. PMID: 16562416

"Decisions about alcohol consumption are not just individual; they can affect the common life of the university."

—Rev. Edward A. Malloy, President Emeritus, University of Notre Dame

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under the influence) intervention within a campus community.

The intervention included a social marketing campaign, with prevention advertisements in the school newspaper, ads posted in public areas on campus, and ads distributed as postcards. The message in the ads warned students that "Drinking Driving Laws Are Strictly Enforced in the College Area." These advertisements were backed up by strong media coverage on the local community stations and in the college paper. DUI checkpoints were operated by the campus police, with assistance from local city police and the highway patrol. The results were promising. One of the universities showed a "considerable drop"[1] in the students' reports of driving after drinking (19).

Short of completely banning alcohol use on campus, research shows that the best prevention programs use multiple approaches. One such multicomponent approach, the "A Matter of Degree" program (AMOD), was launched in 1997 at 10 colleges in the United States. AMOD focused on reducing alcohol availability, raising prices, and limiting alcohol promotions and advertising on and around campus.

Sites where this program was implemented saw improvements in two measures—the percentage of students missing class as a result of alcohol use and the percentage of students driving after heavy alcohol use—compared with colleges that acted as control sites. When researchers assessed the interventions more closely, they found that those sites which instituted more interventions had greater success, reducing both alcohol-related problems, such as binge drinking, and the secondhand effects of drinking, such as alcohol-related assaults (20).

As more credible studies continue to show positive outcomes associated with campus–community partnerships, this strategy should increasingly be considered an essential component of any college drinking prevention and intervention effort.

Social Norms

As described in the original Task Force report, the social norms approach is based on the view that many college students think campus attitudes are much more permissive toward drinking than they really are and believe other students drink much more than they actually do (21–23). The phenomenon of perceived social norms—or the belief that "everyone" is

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[1]In this study, the odds ratio for driving after drinking in the experimental group was 1.00 pre-intervention vs. 0.55 post-intervention. The control campus was 0.67 pre-intervention and 0.64 post-intervention.

"Carefully designed research on alcohol consumption among college students can separate myth from fact and suggest promising preventive strategies based on evidence and outcomes."

—Ting-Kai Li, M.D., Director, NIAAA

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drinking and drinking is acceptable—is one of the strongest correlates of drinking among young adults and the subject of considerable research (24).
By and large, the approach most often used on campuses to change students' perception of drinking focuses on the use of social norms campaigns. These campaigns attempt to communicate the true rate of student alcohol use on campus, with the assumption that as students' misperceptions about other students' alcohol use are corrected, their own levels of alcohol use will decrease.

Still Promising, but Results Are Mixed and Questions Remain

The social norms approach is popular. Nearly half of the 747 4-year residential colleges and universities surveyed in a 2002 study reported having implemented a social norms campaign (25). But are these campaigns successful? Research is mixed. The biggest obstacle in evaluating the effectiveness of social norms campaigns is the inconsistency that exists in the research methodology. For example, what constitutes a social norms program or campaign is not always clearly defined, and the components of the campaign often are not thoroughly evaluated (26).

According to the most rigorous analysis conducted to date (26), social norms approaches work best when combined with other interventions. They may be least effective in schools where very high levels of drinking are found and those that are located in communities with high alcohol outlet density. The more intense the social norms campaign in terms of the percentage of students exposed to its messages, the greater the effect on students' alcohol consumption. In this study, the largest reductions were found in the number of drinks consumed per week and the number of drinks consumed when students "party"—two messages that featured prominently in the study's social norms campaign. The study also showed that students' perceptions of what is normal drinking behavior influence the success of the campaign, confirming that social norms campaigns work by changing the way students view alcohol use.

Just as environmental approaches work best when multiple interventions are used, social norms campaigns have demonstrated the most success when they are teamed with other prevention efforts.

More—and better-designed—studies are needed to determine how social norms campaigns can be integrated into a full prevention strategy. Additional research also is needed to determine how these campaigns can be used to deemphasize the role of alcohol in campus life and lower students' positive expectations about drinking. ■

College Drinking—A Global Issue

Heavy drinking among college students is not a phenomenon unique to the United States. Other countries, particularly those in Europe and South America, as well as Australia and New Zealand, report problems with college drinking on par with those of North America. Similar risk and protective factors also have been found, with male gender, higher socioeconomic status, higher family education, and excessive alcohol use by family and/or peers leading to the greatest risk. Protective factors also were the same: Having a belief in God, having faith practices, and having family and/or peers with negative attitudes toward excessive drinking were important in curbing harmful drinking.

SOURCE: Karam, E.; Kypri, K.; and Salamoun, M. Alcohol use among college students: An international perspective. *Current Opinion in Psychiatry* 20:213–221, 2007. PMID: 17415072

Ongoing Research and Collaborative Efforts

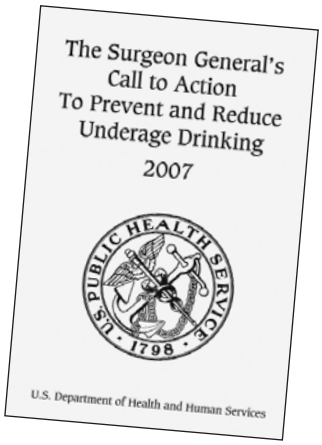
Significant research has taken place in the years since the NIAAA Task Force report was issued, but much remains to be done. It is important to approach research in new ways—for example, to provide a fast track for studies to take advantage of the opportunity to evaluate newly instituted programs and to collaborate with other Government agencies to ensure that research on college drinking continues.

NIAAA's Rapid Response Program—In June 2003, NIAAA issued a special grant program—Rapid Response to College Drinking Problems (PA number PAR–03–133). That new PA provided a rapid funding mechanism for people conducting research on interventions to prevent or reduce alcohol-related problems in college students, trimming the time from submission to award to a matter of weeks. It supported, in particular, interventions capitalizing on natural experiments (for example, unanticipated adverse events, policy changes, new media campaigns, or campus–community partnerships). The outcomes of these research projects have been summarized in a number of articles, and more are expected. See the NIAAA College Web site, www.collegedrinkingprevention.gov, for an updated list.

Intergovernmental Collaborative Approaches—In addition to stepping up the funding opportunities for studying college-age drinking, NIAAA is addressing the broader problem in all youth under 21. The NIAAA Underage Drinking Research Initiative established a steering committee with experts in adolescent development, child health, brain imaging, genetics, neuroscience, prevention research, and other research fields, as well as professionals with communications and public policy expertise. This committee continues to examine in depth the research-based knowledge we have now and to advise NIAAA on this initiative.

NIAAA also has joined forces with other agencies through its participation in the Interagency Coordinating Committee on the Prevention of Underage Drinking (ICCPUD). Chaired by the Administrator of the Substance Abuse and Mental Health Services Administration (SAMHSA), the ICCPUD includes NIAAA; the Office of Juvenile Justice and Delinquency Prevention in the Department of Justice; the National Highway Traffic Safety Administration; the White House Office of National Drug Control Policy; the Centers for Disease Control and Prevention; the Office of the Surgeon General; the Administration for Children and Families; the Department of Defense; the Department of Education; the Federal Trade Commission; the Alcohol and Tobacco, Tax and Trade Bureau; and the Office of the Assistant Secretary for Planning and Evaluation, Department of Health and Human Services (HHS). The purpose of the ICCPUD is to guide policy and program development across the Federal Government with respect to underage drinking.

Surgeon General's Call to Action—In an appeal to change the culture and attitudes toward drinking in America, the Office of the Surgeon General issued a *Call to Action To Prevent and Reduce Underage Drinking* on March 6, 2007.

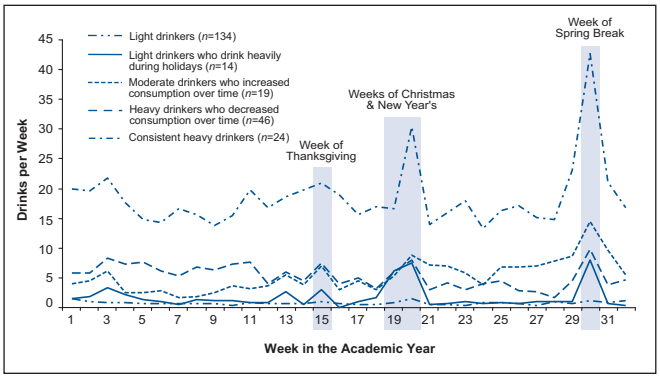


Developed in collaboration with NIAAA and SAMHSA, the 94-page *Call to Action* identifies goals to reduce underage drinking.

A Web site with fact sheets, resources, and the complete *Call to Action* is online at www.surgeongeneral.gov/topics/underagedrinking/. To order hard copies, call the National Clearinghouse for Alcohol and Drug Information at 1–800–729–6686. ■

Tracking Students' Drinking Patterns: A New Perspective on College Drinking

We are learning more about patterns of drinking on campus. Most information on college drinking comes from multi-year national surveys that focus on the overall prevalence of alcohol use on college campuses; however, in a recent study, Greenbaum and colleagues (27) found that alcohol consumption among freshmen students varies considerably from week to week within a single academic year, probably as a result of academic requirements and holidays. This study is unique for two reasons: first, because it measured students' weekly, rather than yearly, rate of alcohol consumption; and second, because it followed the same individuals throughout the study. This allowed researchers to determine how students' drinking varied during the academic year and may help college administrators target students during high-risk drinking periods. The study was relatively small, however, and applies to only one university; it is not known if the precise patterns occur at all colleges and universities or whether they will persist as these students progress through school.



In this study, the researchers saw an increase in consumption during time periods that corresponded to Thanksgiving, Christmas and New Year's, and Spring Break. An increase in drinking also occurred at week 3 (immediately after students arrived on campus), though this increase was not as dramatic as those recorded later in the school year. Additionally, the study shows that students are not all alike and, as suggested by the initial NIAAA Task Force findings, that multiple strategies are required to prevent the problems associated with drinking. For some students, such as those who consistently drink heavily over the course of the year, as shown in the figure, the best approach might be to target prevention efforts continually in an effort to reduce this ongoing drinking—although such approaches are both time-consuming and resource intensive. Other drinking patterns, such as light drinking with increased consumption during holidays, suggest that efforts focused on reducing drinking during high-risk time periods might be more efficient and cost-effective (27). ■

A Word on Alcohol Poisoning

Many tragic news stories have brought to light the problem of *"alcohol poisoning"* among college students. This term is not always clearly understood; it actually refers to a series of complex physiological reactions to alcohol and the toxic byproducts that result when alcohol is metabolized by the body. Some of the signs that someone has ingested toxic amounts of alcohol, which can lead to alcohol poisoning, include:

- Mental confusion, stupor, coma, or the person cannot be roused;
- Vomiting;
- Slow or irregular breathing;
- Hypothermia or low body temperature, bluish skin color, and paleness.

A person can have alcohol poisoning even if he or she doesn't show all of these signs. Left untreated, alcohol poisoning can lead to permanent brain damage or death.

SOURCE: Adinoff, B.; Bone, G.H.A.; and Linnoila, M. Acute ethanol poisoning and the ethanol withdrawal syndrome. *Medical Technology* 3:172–196, 1988. PMID: 3041244

Questions Campus Leaders Should Ask

✔ 1. What type of problem needs to be addressed (e.g., high rates of heavy drinking, fights during sporting events, underage drinking)?

✔ 2. What strategy is most likely to address each problem?

✔ 3. At what level should the strategy be implemented (e.g., at sports stadiums, campuswide, communitywide, Statewide)?

✔ 4. Who should participate in developing strategies? Who should participate at the start and who should be brought in only after a supportive base for action is established?

✔ 5. What strategies are currently being implemented?

✔ 6. How well are existing policies being enforced?

✔ 7. Would enforcement of existing policies be more effective than implementing new policies?

✔ 8. How can environmental and individually focused approaches complement each other?

✔ 9. What resources are needed to implement new strategies? Are resources available?

✔ 10. How will new strategies be evaluated and fine-tuned to maximize their effect?

✔ 11. Are the students who need help most actually getting it? That is, are your interventions reaching the students who need them the most?

✔ 12. Are your strategies founded on solid, research-based findings? And are those strategies reaching the vast majority of your student population?

SOURCE: Material for this checklist originally appeared in Toomey, T.L., and Wagenaar, A.C. Environmental policies to reduce college drinking: Options and research findings. *Journal of Studies on Alcohol* (Suppl.14):193–205, 2005, Updated January 2005 for NIAAA.

Keep an Eye on . . .

College drinking is a complex topic. Reducing harmful alcohol use among young adults calls for innovative approaches. Perhaps some of the best ideas will draw on new technology or new research approaches. It's too early to tell if these approaches will prove useful in real-world campus settings, but they represent some unique prospects and are worth watching.

- Web-based training for resident advisors, counselors, and others in a position to help students who are experiencing problems with alcohol.
- Computerized or Web-based screening for students, such as all entering freshmen, to identify early on those students at risk for alcohol problems.
- Research that more effectively captures specific information about students' patterns of alcohol consumption—for example, asking students the actual numbers of drinks that they consume, which would provide important information about the maximum levels of consumption.
- Multicampus research initiatives that test promising practices.
- Increased tailoring of interventions particularly designed for women, freshmen, athletes, and other specific groups within the school population.
- Social norms research, which continues to be a key focus, as evidenced by a grant program recently instituted by the Department of Education, see also http://www.ed.gov/programs/dvpcollege/fy06awards.html.

For more information, see NIAAA's Web site
www.collegedrinkingprevention.gov

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